

## Claims

1. A home link setting method by a home gateway device having a home agent function for accommodating terminals including mobile terminals, comprising:

5 a step of receiving network information for setting a home network through a communication interface connected to an Internet network;

a home link selecting step of selecting a home link from among links connecting to communication interfaces other than  
10 the communication interface which has received the network information; and

a home agent setting step of executing an internal setting so as cause to the terminal on the selected link to conduct the home agent function.

15 2. The home link setting method according to claim 1,

wherein in said home link selecting step, a link to which a mobile terminal complying with a mobile IP protocol is connected is designated as the home link.

3. The home link setting method according to claim 2,  
20 further comprising:

a step of acquiring home agent information stored in the mobile terminal connected to the link connecting to the communication interface,

wherein in said home agent setting step, when the home  
25 agent information meets conditions specified by the network

information, the internal setting is executed using the acquired home agent information, whereas when the home agent information does not meet the conditions, the internal setting is executed using home agent information generated based on the network information.

4. The home link setting method according to claim 3, wherein in said home agent setting step, when the internal setting is executed using home agent information which is newly generated, notification of the new home agent information is given to all mobile terminals on the home link.

5. The home link setting method according to claim 3 or 4, further comprising:

a step of acquiring information concerning a mobile router function stored in the mobile terminal,

wherein when the mobile terminal performs a mobile router operation, a setting of the home agent corresponding to the mobile router is executed.

6. A home gateway device, comprising:

plural communication interfaces connected to an Internet network or a local link;

a network information processing unit receiving network information for setting a home network through said communication interfaces;

an interface setting unit selecting one of the links connecting to communication interfaces other than the

communication interface which has received the network information to be a home link;

a home agent processing unit performing a home agent function with respect to terminals on the home link; and

5 a home agent setting unit executing settings in said home agent processing unit so as to cause with respect to the terminal on the link designated as the home link by said interface setting unit to conduct the home agent function.

7. The home gateway device according to claim 6,

10 wherein said interface setting unit transmits a verification message for verifying the existence of mobile terminal complying with a mobile IP, and designates the link connecting to the communication interface which has received a message responding to the verification message notifying  
15 the existence of the mobile terminal, as the home link.

8. The home gateway device according to claim 7,

wherein said interface setting unit acquires home agent information stored in the mobile terminal connected to the home link, and

20 wherein when the home agent information meets conditions specified by the network information, said home agent setting unit performs a setting of the home agent function using the acquired home agent information, whereas when the home agent information does not meet the conditions, said interface  
25 setting unit generates home agent information based on the

network information and said home agent setting unit performs a setting of said home agent processing unit using the generated home agent information.

9. The home gateway device according to claim 8,

5 wherein when said interface setting unit newly generates the home agent information, said home agent setting unit notifies all terminals on the home link of the new home agent information.

10. The home gateway device according to claim 8 or 9,

10 wherein said interface setting unit further acquires information concerning a mobile router function stored in the mobile terminal, and

wherein when the mobile terminal performs a mobile router operation, said home agent setting unit executes a setting  
15 corresponding to the mobile router in said home agent processing unit.

11. A mobile terminal, comprising:

a mobile IP processing unit supporting a mobile IP protocol and receiving a verification message for verifying  
20 the existence of the mobile terminal connected on a link;

a home agent information response unit generating a response message in which stored home agent information is written, upon receipt of notification of receipt of the verification message from said mobile IP processing unit,

25 wherein said mobile IP processing unit transmits the

response message to the transmission source device which transmitted the verification message.

12. The mobile terminal according to claim 11,

wherein said mobile IP processing unit further transmits  
5 a response message in which the state of its mobile router processing is written.

13. The mobile terminal according to claim 12,

wherein when said mobile IP processing unit does not support the mobile IP protocol, said home agent information  
10 response unit does not transmit the response message even if the mobile terminal receives the notification of receipt of the verification message from said mobile IP processing unit.

14. The mobile terminal according to claim 12,

wherein said mobile IP processing unit transmits the  
15 response message only when the mobile terminal is connected to a home agent.